

REMARKS

Initially, Applicants would like to express appreciation to the Examiner for the detailed Official Action provided.

Upon entry of the above amendment, claims 1, 2, 7, and 8 will have been amended. Accordingly, claims 1-12 are currently pending. Applicants respectfully request reconsideration of the outstanding rejections and allowance of claims 1-12 in the present application. Such action is respectfully requested and is now believed to be appropriate and proper.

The Examiner has rejected claims 1-3, 6-9, and 12 under 35 U.S.C. § 103(a) as being unpatentable over et al. HAMADA et al. (U.S. 2004/0058233) in view of MARUKAWA et al. (U.S. 6,275,003).

Although Applicants do not necessarily agree with the Examiner's rejection of claims 1, 2, 7, and 8 on this ground, nevertheless, Applicants have amended independent claims 1, 2, 7, and 8 to clearly obviate the above noted ground of rejection in order to expedite prosecution of the present application. In this regard, Applicants note that HAMADA et al. and MARUKAWA et al. fail to teach or suggest the subject matter claimed in amended claims 1, 2, 7, and 8. In particular, claims 1, 2, 7, and 8, as amended, set forth a battery pack including, inter alia, a plurality of prismatic rechargeable batteries; a circuit substrate; a pack case; and a frame holding the rechargeable batteries and on which the circuit substrate is mounted; wherein "the plurality of rechargeable batteries are surrounded by the frame, the frame including a center frame having a plurality of battery accommodating openings, each battery accommodating opening having a shape and dimensions matching the cross section of the lengthwise center of the battery, the battery accommodating openings holding center parts of the batteries and arranging the rechargeable batteries in parallel spaced relationship; a bottom frame having bottom

accommodating parts that receive bottoms of the rechargeable batteries; and a terminal side frame attached to the circuit substrate and having sealing part accommodating parts that receive sealing plate sides of the rechargeable batteries”.

This amendment is fully supported by the specification, including the claims and drawings, and no prohibited new matter has been added. In particular, support for the above amendment may be found at least in figures 2 and 4; and in the specification on pages 8-11.

The battery pack of the present invention includes a plurality of rechargeable batteries 2 arranged in parallel, having their largest flat surfaces directed orthogonal to the bottom surface of the pack case 5. The batteries are held with a space therebetween. To keep the rechargeable batteries 2 arranged in the parallel spaced relationship, the center parts of the rechargeable batteries 2 are held by a center frame 7. The center frame 7 includes battery accommodating openings 17 that match the cross section of the lengthwise center of the rechargeable battery. Further, the ends of the rechargeable batteries 2 are supported by a terminal-side frame 6 and a bottom frame 8.

As shown in figure 4, the rechargeable batteries 2 are inserted in *respective battery accommodating openings 17*, and the walls of the battery accommodating openings 17 surround the central part of each battery separately with *spaces between each battery*, so that the cases 24 of the rechargeable batteries 2 are tightly held and do not swell. Swelling of the battery cases 24 is restricted by the width of the battery accommodating openings 17. Accordingly, degradation of performance of the rechargeable batteries 2 that could be caused by swelling of the battery cases 24 is prevented.

The HAMADA et al. reference discloses a battery pack including a terminal side frame 3 and a bottom frame 4. However, as recognized by the Examiner, the HAMADA et al. device

does not include a center frame, nor a resin mold for covering a circuit substrate surface with a resin, as set forth in claims 1, 2, 7, and 8. Additionally, it is noted that, in the HAMADA et al. device, the batteries are held in position such that the batteries are contacting each other. HAMADA et al. does not disclose holding the batteries in position such that the batteries are spaced from each other, as in Applicants' claimed invention. Thus, the HAMADA et al. device does not include a center frame having a plurality of battery accommodating openings, each battery accommodating opening having a shape and dimensions matching the cross section of the lengthwise center of the battery, and holding the batteries in a parallel and spaced apart relationship, as set forth in amended claims 1, 2, 7, and 8.

Further, the MARUKAWA et al. reference discloses a battery pack including a plurality of binding straps 4 holding the batteries together. The batteries are held in position by the binding straps 4 such that the batteries are contacting each other. MARUKAWA et al. does not disclose holding the batteries in position such that the batteries are spaced from each other, as in Applicants' claimed invention. Further, the binding straps 4 do not include a center frame having a plurality of battery accommodating openings, with each battery accommodating opening having a shape and dimensions matching the cross section of the lengthwise center of the battery. MARUKAWA et al. fails to teach or suggest a battery pack including, inter alia, a plurality of prismatic rechargeable batteries; a circuit substrate; a pack case; and a frame holding the rechargeable batteries and on which the circuit substrate is mounted; wherein "the plurality of rechargeable batteries are surrounded by the frame, the frame including a center frame having a plurality of battery accommodating openings, each battery accommodating opening having a shape and dimensions matching the cross section of the lengthwise center of the battery, the battery accommodating openings holding center parts of the batteries and arranging the

rechargeable batteries in parallel spaced relationship; a bottom frame having bottom accommodating parts that receive bottoms of the rechargeable batteries; and a terminal side frame attached to the circuit substrate and having sealing part accommodating parts that receive sealing plate sides of the rechargeable batteries”, as set forth in amended claims 1, 2, 7, and 8.

Therefore, the MARUKAWA et al. reference fails to cure the deficiencies of the HAMADA et al. device, and even assuming, arguendo, that the teachings of HAMADA et al. and MARUKAWA et al. have been properly combined, Applicants’ claimed battery pack would not have resulted from the combined teachings thereof.

Further, there is nothing in the cited prior art that would lead one of ordinary skill in the art to make the modification suggested by the Examiner in the rejection of claims 1, 2, 7, and 8 under 35 U.S.C. § 103(a) over HAMADA et al. in view of MARUKAWA et al. Thus, the only reason to combine the teachings of HAMADA et al. and MARUKAWA et al. results from a review of Applicants’ disclosure and the application of impermissible hindsight. Accordingly, the rejection of claims 1, 2, 7, and 8 under 35 U.S.C. § 103(a) over HAMADA et al. in view of MARUKAWA et al. is improper for all the above reasons and withdrawal thereof is respectfully requested.

Applicants submit that dependent claims 2, 3, 6, 9, and 12 which are at least patentable due to their dependency from claims 1, 2, 7, and 8 for the reasons noted above, recite additional features of the invention and are also separately patentable over the prior art of record based on the additionally recited features.

The Examiner has rejected claims 4, 5, 10, and 11 under 35 U.S.C. § 103(a) as being unpatentable over et al. HAMADA et al. (U.S. 2004/0058233) in view of MARUKAWA et al. (U.S. 6,275,003), and further in view of MASUMOTO et al. (WO 03/003485).

Applicants note that HAMADA et al. and MARUKAWA et al. fail to teach or suggest the subject matter as set forth in amended independent claims 1, 2, 7, and 8, as described above. Further, MASUMOTO et al. fails to cure these deficiencies. Moreover, as recognized by the Examiner, HAMADA et al. and MARUKAWA et al. fail to teach or suggest a resin mold covering a surface having components mounted thereon, and a resin mold formed by filling a resin in a circuit substrate recess located in the frame on the side of the sealing plate. The Examiner contends that it would have been obvious to combine the resin mold between the battery 101 and the terminal plate 102 of MASUMOTO et al. with the HAMADA et al. device. However, the MASUMOTO et al. reference teaches a resin mold 103 between the individual battery 101 and the individual terminal plate 102. MASUMOTO et al. does not teach or suggest a resin mold that covers a circuit for managing all of the batteries. MASUMOTO et al. includes a resin mold that is on top of the individual battery under the terminal plate 102. MASUMOTO et al. does not teach or suggest a resin that fills in a recess located in the frame on the side of the sealing plate. Thus, contrary to the Examiner's assertions, MASUMOTO et al. fails to teach or suggest a resin mold that covers a circuit substrate formed with a battery management circuit for managing the operating state of each rechargeable battery, as set forth in independent claims 1, 2, 7, and 8; and that covers a surface on which electronic components are mounted, as set forth in claims 4 and 10. Further, contrary to the Examiner's assertions, MASUMOTO et al. fails to teach or suggest a resin mold that covers a circuit substrate formed with a battery management circuit for managing the operating state of each rechargeable battery, as set forth in independent claims 1, 2, 7, and 8; and that fills in a recess to cover the circuit substrate, the recess located in the frame on the side of the sealing plate, as set forth in claims 5 and 11. Therefore, even if the teachings of HAMADA et al., MURAKAWA et al., and MASUMOTO et al. were combined, as

suggested by the Examiner, the claimed combination would not result. Therefore, there is nothing in the cited prior art that would lead one of ordinary skill in the art to make the modification suggested by the Examiner in the rejection of claims 4, 5, 10, and 11 under 35 U.S.C. § 103(a) over HAMADA et al. in view of MURAKAWA et al., and further in view of MASUMOTO et al. Thus, the only reason to combine the teachings of HAMADA et al., MURAKAWA et al., MASUMOTO et al. results from a review of Applicants' disclosure and the application of impermissible hindsight. Accordingly, the rejection of claims 4, 5, 10, and 11 under 35 U.S.C. § 103(a) over HAMADA et al. in view of MURAKAWA et al., and further in view of MASUMOTO et al. is improper for all the above reasons and withdrawal thereof is respectfully requested.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejections, and an early indication of the allowance of claims 1-12.

SUMMARY AND CONCLUSION

In view of the foregoing, it is submitted that the proposed amendment is proper and that none of the references of record, considered alone or in any proper combination thereof, anticipate or render obvious Applicants' invention as recited in claims 1-12. The applied references of record have been discussed and distinguished, while significant claimed features of the present invention have been pointed out.

Accordingly, consideration of the present amendment, reconsideration of the outstanding Official Action, and allowance of the present amendment and all of the claims therein are respectfully requested and now believed to be appropriate.


Applicants have made a sincere effort to place the present application in condition for allowance and believe that they have now done so.

P29569.A09

Any amendments to the claims which have been made in this amendment, which do not narrow the scope of the claims, and which have not been specifically noted to overcome a rejection based upon the prior art, should be considered cosmetic in nature, and to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Should there be any questions, the Examiner is invited to contact the undersigned at the below listed number.

Respectfully submitted,
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March 11, 2010
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